



Division of Water Resources / State Revolving Fund Loan Program

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FINDING OF NO SIGNIFICANT IMPACT

Approval of Facilities Plan

Humboldt (Gibson County), Tennessee

Loan Nos. SRF 2018-411, CW7 2019-432, and SRF 2019-433

January 30, 2019

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by Section 511(c)(1) of the Clean Water Act, is the approval of a facilities plan prepared pursuant to Title VI of the Clean Water Act. In making this determination, the State Revolving Fund (SRF) Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The state's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the SRF Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The City of Humboldt has completed the facilities plan entitled "Wastewater Treatment Plant Improvements for Humboldt Utilities" dated June 2017, "Amendment No. 1" dated January 2018, and "Amendment No. 2" dated February 2018. The facilities plan provides recommendations for improvements to the wastewater treatment system serving the City of Humboldt. This project consists of upgrading the existing 2.6 million gallons per day (MGD) Trickling Filter Wastewater Treatment Plant (WWTP) to a 5.0 MGD Sequencing Batch Reactor along with the construction of a disinfection basin; installation of a new grit removal unit; replacement of influent pumps; and improvements to the sludge treatment and disposal system. All construction will take place on the existing WWTP site. The total estimated project cost is \$22,000,000. A Clean Water State Revolving Fund (CWSRF) planning and design loan for \$540,000 was awarded for this project on January 25, 2018. A CWSRF loan in the amount of 10,900,000 has been requested for this project for construction costs. The first loan (CW7 2019-432) will be for \$3,000,000 and will have \$300,000 in principal forgiveness that will not have to be repaid by the City. The second loan (SRF 2019-433) will be for 7,900,000. Additional funding has also been granted to the City via the Community Development Block Grant in the amount of \$525,000; an Economic Development Administration Grant in the amount of \$2,872,000; and a FastTrack Infrastructure Development Project Grant in the amount of \$7,703,000.

Attached is an Environmental Assessment containing detailed information supporting this proposed action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed.

If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Ms. Felicia D. Freeman, Environmental Manager
State Revolving Fund Loan Program
Tennessee Department of Environment and Conservation
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 12th Floor
Nashville, Tennessee 37243-1102

or call or e-mail (615) 253-5134 or felicia.d.freeman@tn.gov

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Humboldt (Gibson County), Tennessee

Loan Nos. SRF 2018-411, CW7 2019-432, and SRF 2019-433

January 30, 2019

A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS

The City of Humboldt has completed the facilities plan entitled “Wastewater Treatment Plant Improvements for Humboldt Utilities” dated June 2017, “Amendment No. 1” dated January 2018, and “Amendment No. 2” dated February 2018. The facilities plan provides recommendations for improvements to the wastewater treatment system serving the City of Humboldt. This project consists of upgrading the existing 2.6 million gallons per day (MGD) Trickling Filter Wastewater Treatment Plant (WWTP) to a 5.0 MGD Sequencing Batch Reactor (SBR) along with the construction of a disinfection basin; installation of a new grit removal unit; replacement of influent pumps; and improvements to the sludge treatment and disposal system. All construction will take place on the existing WWTP site. The Humboldt Facilities Planning Area and Humboldt Project Areas are shown on Figures 1 and 2, respectively, accompanying this Environmental Assessment.

FUNDING STATUS

The facilities described above comprise the scope of Loan Nos. CW7 2019-432 and SRF 2019-433 scheduled for funding in fiscal year 2019. The estimated project costs are summarized in the following tabulation:

<u>PROJECT CLASSIFICATIONS</u>	<u>COSTS (\$)</u>
Planning Fees	15,000
Design Fees	1,050,000
Engineering Basic Fees	25,000
Resident Inspection	400,000
Construction	17,800,000
Contingencies	2,710,000
TOTAL	22,000,000
CW7 2019-432 Loan	3,000,000
SRF 2019-433 Loan	7,900,000
EDA Grant	2,872,000
FIDP Funds	7,703,000
CDBG Funds	525,000

A Clean Water State Revolving Fund (CWSRF) planning and design loan for \$540,000 was awarded for this project on January 25, 2018. A CWSRF loan in the amount of 10,900,000 has been requested for this project for construction costs. The first loan (CW7 2019-432) will be for \$3,000,000 and will have \$300,000 in principal forgiveness that will not have to be repaid by the City. The second loan (SRF 2019-433) will be for 7,900,000. Additional funding has also been granted to the City via the Community Development Block Grant in the amount of \$525,000; an Economic Development Administration Grant in the amount of \$2,872,000; and a FastTrack Infrastructure Development Project Grant in the amount of \$7,703,000.

B. EXISTING ENVIRONMENT

The City of Humboldt’s Planning Area is located in Gibson County in west Tennessee. A discussion of existing environmental features in the area includes the following:

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SURFACE WATERS

Surface waters within the Humboldt Planning Area include the Middle Fork of the Forked Deer River, and its tributaries. Designated uses for Middle Fork of the Forked Deer River include fish and aquatic life, recreation, irrigation, and livestock watering and wildlife. The City of Humboldt's WWTP discharges treated effluent at River Mile 23.4 of Middle Fork of the Forked Deer River.

GROUNDWATER

Groundwater in Humboldt's Planning Area occurs in the lower Wilcox Aquifer, a broad structural syncline that includes several water bearing layers of sand and gravel from 50 to 2,600 feet below the surface. The lower Wilcox aquifer consists of sands deposited in fluvial conditions similar to those in the floodplain of the Mississippi River and is the lowermost aquifer in the tertiary rocks in the Mississippi Embayment. It is underlain by a thick sequence of marine clay beds known as the Midway confining unit. This confining unit hydraulically separates the lower aquifer from underlying aquifers in Cretaceous rocks, except locally where the confining unit is thin and is recharged by precipitation on aquifer outcrop areas and by downward leakage from overlying aquifers. Drilled water wells vary from 180 to 200 feet below the surface. The water quality is considered to be generally good. The City of Humboldt obtains its drinking water from three groundwater wells.

SOILS

The Humboldt Planning Area lies in the Memphis-Grenada-Loring Soil Association. The Memphis soils consist of well-drained, level to moderately steep, silty soils on broad ridgetops and side slopes. These soils are formed in loess that is 3.5 to 15 feet thick and overlies sands and clays of the Coastal Plain. The surface layer is brown silt loam, and the subsoil is brown to reddish-brown silt loam or silty clay loam. The Grenada soils consist of deep, moderately well drained, level to strongly sloping soils on uplands, and terraces. These soils are formed in thick loess. The Loring soils consist of deep, well drained to moderately well drained soils on uplands. These soils are formed in thick loess on level to moderately steep, broad ridgetops and side slopes. The surface soil is brown silt loam, and the subsoil is reddish-brown to strong-brown silty clay loam.

TOPOGRAPHY

The Humboldt Planning Area lies within the Mississippi Alluvial Plain in the Gulf Coastal Plains Physiographic Region, a large geographic land area from the Gulf of Mexico northward to southern Illinois. The topography of the planning area is sloping to gently rolling terrain. Local elevations range in altitude from near sea level in the north to about 310 feet above mean sea level (MSL) at the southern edge of the planning area.

OTHER ENVIRONMENTAL FEATURES

No wild or scenic rivers exist in the Humboldt Planning Area. Horns Bluff Wildlife Refuge; Davy Crocket Lake; and Humboldt Hatchery, a wildlife fish hatchery, are located within the Planning Area west of the City in Gibson County. However, none of these areas will be affected by the construction of this project.

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C. EXISTING WASTEWATER FACILITIES

The City of Humboldt owns and operates a 2.6 MGD WWTP and wastewater collection system. The Humboldt facility is the only municipal WWTP in the planning area. The WWTP was originally built in the 1960s, and last modified in 2014, consists of an influent headworks, an equalization basin, an intermediate pumping station, grit removal system, primary clarifiers, trickling filters, aeration basins, final clarifiers, effluent pumping station and disinfection, and sludge treatment and disposal facilities. The average monthly flow of the WWTP is 1.63 MGD and the peak flow is 2.63 MGD during dry weather.

The WWTP currently operates under the National Pollutant Discharge Elimination System (NPDES) Permit No. TN0062588 that includes the following parameters and effluent limitations:

<u>PARAMETER</u>	<u>EFFLUENT LIMITATIONS</u>
CBOD ₅	25 milligrams per liter (mg/l)
Suspended Solids	30 mg/l
Fecal Coliform	126/100 colonies per milliliter
Dissolved Oxygen	5.0 instantaneous minimum
Ammonia as N (May 1-October 31)	8 mg/l
Ammonia as N (Nov. 1-April 30)	15 mg/l
Chlorine Residual, Total	0.3 instantaneous maximum
Settleable Solids	1.0 daily maximum (milliliter/liter)
pH	6.0-9.0 (Standard Units)

The City of Humboldt's wastewater collection system was constructed in the 1940's. The collection system consists of approximately 262,700 linear feet (LF) of clay lines and approximately 20,000 LF of polyvinyl chloride lines. There are 13 pumping stations within the collection system that range from 80 gallons per day (gpm) to 900 gpm in capacity. There are approximately 1,177 manholes in the collection system with approximately 1,000 made from brick and 177 made from concrete.

Excessive infiltration and inflow (I/I) has occurred within the wastewater collection system because of aging piping material. During wet weather conditions, the WWTP can experience wet weather flows of 7 MGD and has peaked as high as 14 MGD. The City of Humboldt has reduced I/I by rehabilitating approximately 6,560 LF of sewer line during the past 5 years. The City continues to reduce I/I through sewer system improvement projects annually. The City also uses local utility crews to perform spot repairs to remove I/I.

D. NEED FOR PROPOSED FACILITIES AND ACTIONS

The City of Humboldt's existing WWTP has outlived its useful life. The WWTP requires more frequent maintenance because of its aging unit processes. The modified NPDES permit includes parameters for nutrients that the existing WWTP cannot meet. Additionally, the City has acquired a large industrial user that will discharge approximately 2.0 MGD of wastewater to the wastewater collection system that will require treatment at the WWTP. Currently, the design capacity is 2.6 MGD. It is more cost-effective to replace the existing WWTP than to upgrade the plant for nutrient removal and continue to perform more frequent maintenance. Therefore, the City of Humboldt needs to construct a new WWTP with an average daily design capacity of 5.0

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MGD to address the WWTP's growing age and increased operation and maintenance costs, the modified NPDES permit parameters for nutrients, and the increased capacity because of the large industrial user. This project will be beneficial to the environment because it will be able to meet discharge requirements, and provide the improvement of water quality conditions and public health.

EXISTING AND PROJECTED FACILITY CONDITIONS

<u>POPULATION</u>	<u>EXISTING (2018)</u>	<u>PROJECTED (2038)</u>
City of Humboldt	9,332	11,500
Percent Sewered	100 %	100 %
Planning Area Excluding Humboldt	0	0
Percent Sewered	0%	0%
Total Planning Area	9,332	11,500
Percent Sewered	100%	100%
<u>CITY/UD WWTP FLOWS (MGD)</u>	<u>EXISTING (2018)</u>	<u>PROJECTED (2038)</u>
Domestic/Commercial	1.30	2.00
Industrial	0.70	1.70
Infiltration/Inflow (during rainfall events)	12.0	10.3
TOTAL	14.0	14.0

A modified draft NPDES Permit was issued December 19, 2018 with the following parameters and effluent limitations which will be effective for the proposed WWTP expansion to 5.0 MGD:

<u>PARAMETER</u>	<u>EFFLUENT LIMITATIONS</u>
CBOD ₅	25 mg/l
Total Nitrogen	121,764 lb/year (rolling average)
Total Phosphorus	15,220 lb/yr (rolling average)
Suspended Solids	30 mg/l
Fecal Coliform	126/100 colonies per milliliter
Dissolved Oxygen	5.0 instantaneous minimum
Ammonia as N (May 1-October 31)	8 mg/l
Ammonia as N (Nov. 1-April 30)	15 mg/l
Chlorine Residual, Total	0.3 instantaneous maximum
Settleable Solids	1.0 milliliter/liter (daily maximum)
pH	6.0-9.0 (Standard Units)

E. ALTERNATIVES ANALYSIS

Several alternatives, including a "No-action" alternative, were evaluated for wastewater treatment and management in the July 2017 facilities plan. A summary discussion of the

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evaluation of each alternative for the WWTP upgrades and the selection of the recommended plan follows:

NO ACTION

The "No-action" approach was not a viable alternative. The NPDES discharge limitations for nutrients must be met in order to maintain surface water conditions. These parameters cannot be met by the facilities as they now exist. The equipment at the WWTP needs to be replaced because of its age and increased operation and maintenance costs. Therefore, some action must be taken to protect the environment and public health. This alternative was not the most cost-effective and was rejected.

UPGRADING THE EXISTING FACILITY

This alternative consists of renovations to the current influent headworks, grit removal system, primary clarifiers, trickling filters, aeration basins, final clarifiers, effluent pumping station, and sludge disposal system. Upgrading the existing wastewater treatment facility would allow the effluent discharge criteria to be met by the renovation of existing units. The capital cost of this alternative is lower than the other alternatives considered, however the operating and maintenance cost would be higher than the chosen alternative. Therefore, this alternative was not the most cost-effective and was rejected.

EXTENDED AERATION PROCESS

This alternative consists of the construction of an oxidation ditch, which is a continuous flow extended aeration process. The oxidation ditch would replace the primary clarifiers, trickling filters, and aeration basin. This process is a modification of the activated sludge process that utilizes a low organic loading and a long aeration (24-hour) period. The construction of the extended aeration process would allow the effluent discharge criteria to be met by the replacement of existing units. The capital cost of this alternative is the highest of the alternatives. This alternative was not the most cost-effective and was rejected.

SEQUENCING BATCH REACTOR (SBR)

This alternative consists of upgrading the existing 2.6 MGD Trickling Filter WWTP with a new 5.0 MGD SBR along with the construction of a disinfection basin; installation of a new grit removal unit; replacement of influent pumps; and improvements to the sludge treatment and disposal system. This alternative was the most cost-effective and was selected.

F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES

The environmental benefits of this project will be the water quality improvement of the receiving stream of the WWTP, and the protection of public health and the environment.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these impacts will be required; however, many of these minimization measures will be temporary and only necessary during construction. Using the following measures to prevent erosion will minimize impacts on the environment:

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1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.
2. Soil or landscaping maintenance procedures will be included in the specifications.
3. The contractor will develop an Erosion Control Plan. It will contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It will include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

These measures, along with requiring the contractor to return the construction site to as-good-as or better-than its original condition, will prevent any adverse impacts due to erosion.

Future discharges from the upgraded/modified Humboldt WWTP will be in compliance with all Waste Load Allocations assigned in any relevant approved/established Total Maximum Daily Loads that have been developed for this watershed. The proposed action will also comply with all relevant Phase I and/or Phase II stormwater regulations, including ensuring adequate sediment control and implementation of best management practices.

G. PUBLIC PARTICIPATION; SOURCES CONSULTED

A Public Meeting was held on January 10, 2019 at 6:15 p.m., local time. The selected plan for wastewater treatment and user charges were described to the public, and their input was received. This agency is not aware of any unresolved public objections that may have been voiced before or after the public meeting regarding this project.

The annual median household income for the City of Humboldt is \$35,514. The current user rate for the typical residential user (5,000 gallons per month) will increase from \$27.25 to \$30.25 per month on January 1, 2020 and to \$33.57 per month on July 1, 2021. The total incremental annual cost for this project is \$75.84, which is approximately 0.21 percent of the current annual household median income.

Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of ECD
3. Tennessee Department of Environment and Conservation (TDEC), Division of Air Pollution Control (DAPC)
4. Tennessee Department of Transportation
5. Tennessee Historical Commission
6. TDEC, Division of Archaeology
7. Tennessee Geological Survey
8. TDEC, Division of Solid Waste Management
9. TDEC, Division of Water Resources
10. Tennessee Wildlife Resources Agency
11. United States Army Corps of Engineers
12. United States Fish and Wildlife Service
13. City of Humboldt
14. Gibson County
15. J.R. Wauford & Company